IN THE CLAIMS:

This listing of claims will replace all prior versions, and listing, of claims in the application.

Listing of the Claims:

1. (Previously presented) A vibration sensing device comprising:

a hollow flextensional body having a cross section that has a major and a minor axis, said flextensional body being operable to deform in response to received vibrational energy and thereby produce a variation in a predetermined property exhibited by said body in the direction of one of said major or minor axis, said flextensional body being shaped such that said variation in said predetermined property is amplified in the direction of the other of said major or minor axis; ~~and~~

a mass mounted on said flextensional body such that vibrational energy received along said minor axis causes acceleration of the mass, and

a sensor coupled with the flextensional body along said major axis and operable to detect the amplified variation indicative of received vibrational energy.

2. (Previously presented) A vibration sensing device according to claim 1, wherein said predetermined property comprises force~~, vibrational energy received along said minor axis causing deformation of said flextensional body, with a force acting along said minor axis and an amplified force acting along said major axis, said sensor being coupled to said flextensional body along said major axis to detect the amplified force~~.

3. (Cancelled)

4. (Previously presented) A vibration sensing device according to claim 1, said vibration sensing device further comprising an outer housing for housing said vibration sensing device.

5. (Cancelled)

6. (Currently amended) A vibration sensing device according to claim [[2]]1, ~~said vibration sensing device further comprising a mass mounted on said flextensional body and~~ wherein said minor axis has a first and a second end, said mass being mounted to said flextensional body in the proximity of said first end of said minor axis.

7. (Currently amended) A vibration sensing device according to claim [[2]]6, said vibration sensing device further comprising an outer housing for housing said vibration sensing device ~~and a mass mounted on said flextensional body, wherein said minor axis has a first and a second end, said mass being mounted to said flextensional body in the proximity of said first end of said minor axis and~~ wherein said flextensional body is mounted to said outer housing via mounting means, said mounting means connecting a portion of said flextensional body in the proximity of said second end of said minor axis to said housing.

8-10. (Cancelled)

11. (Previously presented) A vibration sensing device according to claim 1 wherein said flextensional body comprises a tube with an elliptical cross section.

12. (Previously presented) A vibration sensing device according to claim 1, wherein said mass is mounted within said hollow flextensional body.

13. (Previously presented) A vibration sensing device according to claim 1, wherein said flextensional body comprises an outer wall, said outer wall having a substantially uniform thickness.

14-17. (Cancelled)

18. (Previously presented) A vibration sensing device according to claim 1, wherein said vibration sensing device comprises an accelerometer.

19. (Previously presented) A vibration sensing device according to claim 1, wherein said sensor comprises a strain sensor

20. (Currently amended) A vibration sensing device according to claim 1, wherein said sensor comprises an optical fibre coupled to said flextensional body such that deformation of said flextensional body produces a strain in said optical fibre which imposes a variation in at least one predetermined property of an optical signal transmitted through said optical fibre, said optical fibre being arranged such that at least one end is accessible for optical coupling to an optical device comprising a detector for detecting said ~~changes~~ variation in said at least one predetermined property of said transmitted optical signal.

21. (Original) A vibration sensing device according to claim 20, wherein said optical fibre is coupled under stress to said flextensional body.

22. (Cancelled)

23. (Currently amended) A vibration sensing device according to claim 20 wherein ~~said predetermined property comprises force, vibrational energy received along said minor axis causing deformation of said flextensional body, with a force acting along said minor axis and an amplified force acting along said major axis, said sensor being coupled to said flextensional body along said major axis to detect the amplified force, and wherein~~ said vibration sensing device comprises blocks mounted on the outer surface of said ~~flextensioal~~ flextensional body at either end of said major axis, said optical fibre sensor being coupled to said flextensional body by being wound around said blocks.

24. (Cancelled)

25. (Previously presented) A vibration sensing device according to claim 20, wherein said optical fibre is coupled to said flextensional body such that both ends of said optical fibre are accessible for optical coupling to further optical devices.

26. (Previously presented) A vibration sensing package, comprising three vibration sensing devices according to claim 1, each of said three vibration sensing devices having a sensor coupled along an axis of said sensing device, said three vibration sensing devices being mounted such that said axes along which respective sensors are coupled are arranged orthogonally to one another.

27. (Original) A vibration sensing package according to claim 26, said package further comprising a hydrophone.

28. (Previously presented) A vibration sensing system, comprising:
a first plurality of vibration sensing devices according to claim 20;
an electromagnetic radiation source and an electromagnetic radiation detector;
said optical fibres of said first plurality of vibration sensing devices being arranged in optical communication with each other and with said electromagnetic radiation source and detector;
said electromagnetic radiation source being operable to transmit an optical signal into said optical fibres of said plurality of vibration sensing devices; and
said electromagnetic radiation detector being arranged to receive electromagnetic radiation output from said plurality of vibration sensing devices and to detect a variation in at least one predetermined property of said output optical signal.

29. (Original) A vibration sensing system according to claim 28, where said first plurality of vibration sensing devices are arranged optically in series.

30. (Previously presented) A vibration sensing system according to claim 28, said sensing system further comprising a plurality of partial radiation reflectors, said plurality of partial

radiation reflectors being arranged before and after each of said plurality of vibration sensing devices; wherein

said electromagnetic radiation source is operable to transmit a plurality of pulses into said first plurality of vibration sensing devices such that a pulse of radiation that is reflected back through one vibration sensing device by a reflector immediately after said vibration sensing device reaches said electromagnetic radiation detector at the same time as, and interacts with, a subsequent pulse reflected by a reflector immediately before said one vibration sensing device;

said variations in said at least one predetermined property of said optical signal detected by said electromagnetic radiation detector being variations in phase.

31. (Original) A vibration sensing system according to claim 30, further comprising a signal processor including a time division demultiplexer, said signal processor being operable to process signals produced by said electromagnetic detector in response to said variations in phase and to isolate signals from individual vibration sensing devices using said time division demultiplexer.

32. (Previously presented) A vibration sensing system according to claim 29, further comprising:

a second plurality of vibration sensing devices arranged optically in series with each other, said second plurality of vibration sensing devices being arranged optically in parallel with said first plurality of vibration sensing devices; and

a first and second wavelength multiplex/demultiplex unit operable to isolate a single frequency; wherein

said electromagnetic source is operable to produce pulses of radiation at first and second frequencies and said first and second wavelength multiplex/demultiplex units are arranged such that pulses of said first frequency are transmitted from said source to said first plurality of vibration sensing devices and pulses of said second frequency are transmitted from said source to said second plurality of vibration sensing devices.

33. (Original) A vibration sensing system according to claim 32, further comprising

at least one further plurality of vibration sensing devices and at least one further wavelength multiplex/demultiplex unit, said at least one further plurality of vibration sensing devices being arranged optically in parallel with said first and said second plurality of vibration sensing devices; wherein

said electromagnetic source is operable to produce pulses of radiation at first, second and at least one further frequency and said at least one further multiplex/demultiplex unit is arranged such that pulses of said at least one further frequency are transmitted from said source to said at least one further plurality of vibration sensing devices.

34. (Original) A vibration sensing system according to claim 31 wherein said first plurality of vibration sensing devices are arranged optically in parallel.

35 (Cancelled)

36. (Original) A method of detecting vibrations comprising:

coupling a sensor to a hollow flextensional body having a cross section that has a major and a minor axis said sensor coupled along said major axis, said flextensional body being operable to deform in response to received vibrational energy and thereby produce a variation in a predetermined property exhibited by said flextensional body in the direction of one of said major or minor axis, said flextensional body being shaped such that said variation in a predetermined property is amplified in the direction of the other of said major or minor axis; ~~and~~

coupling a mass to said flextensional body such that vibrational energy received along said minor axis causes acceleration of the mass;

placing said flextensional body in an environment where vibrational energy is to be detected; and

detecting the amplified variation indicative of received vibrational energy with said sensor.

37-51. (Cancelled)